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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,313	05/09/2001	Tatsuya Usami	NEC01P069-MSb	2820

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EXAMINER	
MALDONADO, JULIO J	

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 09/851,313	**Applicant(s)** USAMI, TATSUYA	
	Examiner Julio J. Maldonado	**Art Unit** 2823	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 14 November 2005 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☐ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☒ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: *See Continuation Sheet*. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: *none*.
   Claim(s) objected to: *none*.
   Claim(s) rejected: *1,2,4-6,8 and 31-52*.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____
13. ☐ Other: _____.

George Fourson
Primary Examiner

Continuation of 3. NOTE: The amendment filed 11/14/2005 in reply to the final rejection has been considered but is not deemed to place the application in condition for allowance and will not be entered because the proposed amendment raises new issues that would require further consideration and/or search. The amended independent claims now add the limitation "...organosiloxane film...organosiloxane film of said...", where there was no mention within the claims of this limitation. The amendment raises new issues into the prosecution of the instant application and would thus provide grounds for a new search and further consideration..

Continuation of 11. does NOT place the application in condition for allowance because: Applicant's arguments filed 11/14/2005 have been fully considered but they are not persuasive.

Applicant argues, "...in the claimed invention the second insulation layer includes a polysiloxane compound having an Si-H group and formed on and adhering to a top of the organosiloxane film of the first insulation layer...this feature if not taught or suggested by Yau...". In response to this argument, Yau et al. teach an interconnect structure including a dielectric adhesive layer formed in a plasma reactor. This compound is the product of organosilicon compounds having the structure SiHa(CH3)b(C2H5)c(C6H5)d, where a=1 to 3, b=0 to 3, c=0 to 3 and a+b+c+d=4, and oxidizing compounds such as N2O and O2 (column 4, lines 32 - 63). Yau et al. also teach using CH3-SiH3 as a preferred organosilicon compound. However, Yau et al. fail to expressly teach that said product includes a Si-H bond. Nevertheless, and for purposes of providing support, Schmitt et al. to U.S. 2005/0233591 A1 teach an interconnect structure including a dielectric adhesive layer formed in a plasma reactor using reactants such as CH3-SiH3, and (CH3)2-SiH2, for example, and oxidizing compounds such as N2O and O2, wherein said product can include CH3-SiH2-O- groups and (CH3)2-SiH-O- groups. (Schmitt et al., [0027] - [0033]). Since the same materials are treated the same way, the same product is obtained, and Yau et al. teach upon the claimed limitation.

Also, Applicant argues, "... Yau teaches that the organosiloxane film of the first insulation layer would adhere well to the inorganic material in the third insulation layer. Thus, Yau would have no reason to form a second insulation layer to improve adhesion between the organosiloxane film and the third insulation layer...". In response to this argument, and as mentioned hereinabove, Yau et al. teach an interconnect structure having a first organic dielectric layer, the second insulation layer, which is an adhesion layer, and a third insulation layer as claimed.

Applicant also argues, "...there is no motivation or suggestion in the references (Yau et al. in view of Applicants' Admitted Prior Art) to urge the combination as alleged by the Examiner...". In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Yau et al. teach an interconnect structure including a first dielectric layer made of parylene, FSG, or the like (column 13, lines 12 - 28). Furthermore, the prior art teaches dielectric layers used for interconnect structures include MSQ (Instant page 2, lines 5 - 8 and page 5, lines 9 - 24). Therefore, as mentioned in the rejection mailed in 07/11/2005, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Yau et al. with the teachings of the prior art to substitute the dielectric material taught by Yau et al. for the SOG material disclosed by the prior art because using MSQ reduces crosstalk between metal wires (Instant page 2, lines 12 - 15) and because the selection of a known material based on its suitability for its intended use supported a prima facie obviousness. MPEP 2144.07

Furthermore, Applicant argues, "...there is no motivation or suggestion in the references (Yau et al. in view of Aoi) to urge the combination as alleged by the Examiner...". In response to this argument, and as mentioned above, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as well as in the previous example, Yau et al. teach an interconnect structure including a first dielectric layer made of parylene, FSG, or the like (column 13, lines 12 - 28). Furthermore, Aoi (Figs.4a-11c) teaches a multilayered insulation film having wiring embedded therein, wherein interlayer insulation layer (204) comprises any arbitrary material such as fluorinated polyimide and polyaryl ether (column 10, lines 1 - 11). Therefore, It would have been within the scope of one of ordinary skill in the art to combine the teachings of Yau et al. with the teachings of Aoi to enable using the dielectric materials of Aoi in Yau et al. because one of ordinary skill in the art at the time the invention was made would have been led to the conclusion that the selection of known materials based on its suitability for its intended use supported a prima facie obviousness. MPEP 2144.07.

In reference to the combination of Yau et al., Allada et al. and Chen et al., Applicant argues, "...these reference would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention. In contrast to Yau, Allada is intended to address the problems involved with forming an undoped silicon glass (USG) hardmask on a polymer-insulated material without taking out a wafer from a spin-truck device, by producing multilayered wired in which both the hardmask and a layered insulation material are capable of being spin-coated. Moreover, in complete contrast to Yau and Allada, Chen is intended to provide a method for chemically and mechanically controlling the chemical mechanical polishing (CMP) characteristics of polysiloxanes which have low dielectric constants...". In response to this argument, Allada et al. was relied on Allada et al. was relied on teaching a second insulating film comprising a methylated hydrido organo siloxane polymer (HOSP), wherein said polymer can be formed by spin coating processes or by conventional CVD processes (column 2, lines 7 - 67) for the further advantage of better adhesion properties than conventional dielectric layers (Allada et al., column 1, lines 37 - 60 and column 2, lines 36-48). Chen et al. was relied for support. Specifically, according to Chen (Fig.1), methylated hydrido organo siloxane polymer (HOSP) includes repeating units of (SiCH3O2)n, (SiO2H)n and (SiO3)n, wherein a molar ratio of (SiO2H)n to a total of said repeating units is at least 0.2..